

ARSLANOVA, A.Kh.; BELYAKOV, V.D.; BERGER, B.I.; VASIL'YEV, A.S.; GAVRILOV,
N.A.; GEL'MAN, L.I.; KALUGIN, V.P.; KOROSTELEV, V.Ye.; KRAMER,
I.I.; MIKHAYLOVSKIY, V.T.; ROGOZIN, I.I.; SEREBRYAKOV, L.V.

Combined vaccination with chemical and living vaccines. Voen.-med.
zhur. no. 1:78-80 Ja '60. (MIRA 14:2)
(VACCINATION)

MIKHAYLOVSKIY, V.T., general-mayor meditsinskoy sluzhby; AGAFONOV, V.N.,
~~polkovnik meditsinskoy sluzhby, dotsent~~

Epidemiological nature of influenza and problems in its prevention.
Voen.-med. zhur. no.3:77-82 Mr '60. (MIRA 14:1)
(INFLUENZA)

ROGOZIN, Isaak Iosifovich, red.; BELYAKOV, V.D., red.; KOROSTELEV,
V.Ye., red.; MIKHAYLOVSKIY, V.T., red.; SOLODILOV, Ye.V.,
red.; LABEZOV, G.I., red.; ~~SHURA-BURA~~, E.L., red.; DAAL'-BEG,
I.I., red.; LEBEDEVA, Z.V., tekhn. red.

[Military epidemiology] Voennaya epidemiologiya. Leningrad,
Medgiz, 1962. 135 p. (MIRA 15:11)
(EPIDEMIOLOGY) (MEDICINE, MILITARY)

MIKHAYLOVSKIY, V. T., and AGAFONOV, V. I.

"Some results and problems with respect to further lowering the incidence of infectious disease among troops" - p. 3

Voyenno Meditsinskiy Zhurnal, No. 3, 1962

USSR / Farm Animals. Cattle

Q-2

Abs Jour : Ref Zhur-Biol., No 6, 1958, 26131

Author : Mikhaylovskiy V.V.

Inst : Not given

Title : The Effect of the Rations containing Coriander Grist upon the Productivity of Cows, Quality of Milk and of the Butter-fat (Experimental Work). (Vliyaniye ratsionov s koriandro-vym shrotom na produktivnost' korov, kachestvo moloka i maslyanogo zhira (Eksperim. rabota))

Orig Pub : Tr. Voronezhsk. zoovet. in-ta, 1956, 14, 53-62

Abstract : The coriander grist consists of ripe coriander grains from which husk, etheroal oil and fat have been eliminated. It contains 12.1 percent of hygroscopic water, 25 percent of protein, 5.6 percent of fat, 19.2 percent of cellulose, 29.2

Card 1/2

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MIKHAYLOVSKIY, V. V., Candidate Med Sci (diss) -- "The nervous intermesentery tract of man and certain mammals (Experimental-morphological investigation)". Odessa-Lugansk, 1959. 15 pp (Odessa Med Inst im N. I. Pirogov, Lugansk Med Inst), 200 copies (KL, No 24, 1959, 151)

MIKHAYLOVSKIY, Ya.

Improve the supply of chemical materials to Armenian
industry. Prom.Arm. 6 no.1:15-17 Ja '63. (MIRA 16:4)
(Armenia---Chemical industries)

MIKHAYLOVSKIY, Ya.

Improve production standards of the chemical industry of the Republic.
Prom.Arm. 6 no.9:15-17 S '63. (MIRA 16:12)

MIRZABEKOV, G.G., inzh.; MIKHAYLOVSKIY, Ye.A., kand. tekhn. nauk

Review of E.B. Karpin's book "Design of weighing and
proportioning equipment." Mekh. i avtom. proizv. 18
no.4:58 Ap'64. (MIRA 17:6)

ACC NR: AP6021577

(N)

SOURCE CODE: UR/0402/66/000/003/0328/0332

AUTHOR: Mikhaylovskiy Ye. M.

ORG: Institute of Poliomyelitis and Virus Encephalitis Diseases, Academy of Medical Sciences, SSSR, (Institut poliomyelita i virusnykh entsefalitov AMN SSSR)
Moscow

TITLE: Growth of rabies virus in primary puppy kidney tissue culture

SOURCE: Voprosy virusologii, no. 3, 1966, 328-332

TOPIC TAGS: virology, virus, rabies ~~virus~~, production method, tissue culture, serial passage, animal disease, human disease, disease vector

ABSTRACT:

A comparative study of two strains ("Mochalin" and "Kap") of rabies virus grown in puppy kidney tissue showed that the "Mochalin" strain which had been adapted to the culture by serial passaging multiplied more rapidly than the "Kap" strain. No destruction of the cell monolayer was observed during multiplication of the virus. The "Mochalin" strain had also been adapted to growth in a hamster kidney cell culture and multiplied rapidly when transferred to the puppy kidney culture. Orig. art. has: 2 tables.

[W.A. 50; CBE No. 10]

SUB CODE: 06/ SUBM DATE: 15Jul65/ ORIG REF: 004/ OTH REF: 003/

Card 1/1

UDC: 576.858.21-095.6.093.35

MIKHAYLOVSKIY, Yevgeniy Vasil'yevich, kandidat tekhnicheskikh nauk,
dotsent; LYZO, G.P., redaktor: KOGAN, F.L., tekhnicheskiiy redaktor

[Theory and design of the automobile] Teoriia i raschet avto-
mobilii. Moskva, Nauchno-tekhn. izd-vo avtotransp. lit-ry, 1955.
246 p. (MIRA 9:2)

(Automobiles--Design and construction)

~~MIKHAYLOVSKIY~~, Yevgeniy Vasil'yevich, kandidat tekhnicheskikh nauk, dotsent;
GRUZINOV, V.I., redaktor; GALAKTIONOVA, Ye.N., tekhnicheskij redaktor;

[The construction of automobiles] Ustroistvo avtomobilia. Moskva,
Nauchno-tekhn. izd-vo avtotransp. lit-ry, 1956. 337 p. (MLBA 10:1)
(Automobiles--Design and construction)

MIKHAYLOVSKIY, Yevgeniy Vasil'yevich; TSIMBALIN, Viktor Borisovich;
SHKOL'NIKOV, A.B., red.; PEVZNER, V.I., tekhn.red.

[Theory of tractors and automobiles] Teoriia traktora i
avtomobilii. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 335 p.
(MIRA 13:11)

(Tractors) (Automobiles)

MIKHAYLOVSKIY, Yevgeniy Vasil'yevich; SAFONOV, Georgiy Anatol'yevich;
SEREERYAKOV, Kirill Borisovich; TARASOVA, K.A., red.;
YUNISOVA, M.I., tekhn. red.

[Motor-vehicle and tractor engines] Avtotraktornye dvigateli.
Gor'kii, Gor'kovskoe knizhnoe izd-vo, 1963. 302 p.
(MIRA 17:4)

GRIGOR'YEV, E.P., inzh.; KUZNETSOV, V.Ye., inzh.; MAKSEYEV,
V.G., inzh.; PETROVSKIY, A.S., inzh.; VEDESHKIN, V.I.,
tekhnik; KORABEL'NIKOV, V.V., kapitan-nastavnik;
MIKHAYLOVSKIY, Ye.V., red.

[Fisheries] Promyslovoye delo. Murmansk, Murmanskoye knizhnoe
izd-vo, 1964. 463 p. (MIRA 18:5)

MIKHAYLOVSKIY, Ye.V., and. tekhn. nauk; TSE, Ye.Ya.

Aerodynamic investigation of the flow around airfoils
of a nonsymmetric air stream. Art. prem. '0 no.8:1-4.
Ag '64. (2154 1011)

1. Gor'kovskiy sel'skokhozyaystvennyy institut.

15(2)

SCV/72-59-7-12/19

AUTHORS: Gorodinskiy, G. M., Kudryashov, A. M., Mikhaylovskiy, Ya. E.

TITLE: New Models of Reflexometers (Novyye modeli refleksometrov)

PERIODICAL: Steklo i keramika, 1959, Nr 7, pp 37 - 39 (JSSR)

ABSTRACT: As may be seen from papers by G. M. Gorodinskiy, A. G. Minakov, R. I. Tsoy (see footnote) up to now the attachment reflexometer NRG-1 was used for the operational control of the working accuracy of flat polished surfaces in glass works. This device exhibits a number of shortcomings and must be operated by 2 persons. Figure 1 shows the new model of the attachment reflexometer RN1 which may be operated by one person. Its wiring diagram is represented in figure 2. For this purpose the valves 6N9S, the ferroresonance voltage stabilizer STN-35M, the germanium diodes of the type DGTs-27 and the incandescent lamp STs61 were used. For the purpose of examining the accuracy of the processing of glass which afterwards is to be polished, a test sample of a recording reflexometer RR1 was produced (see figures 3 and 4). Its measuring device consists of the antimony-cesium-photocell STsV-6, the microamperemeter of the type M24, and the electronic potentiometer of the type EPP-09. The reversible motor DT-75 and the electromagnetic muff EMR-500 are fitted into the carriage mechanism. The recording

Card 1/2

New Models of Reflexometers

SCV/72-59-7-12/13

reflexometer was tested and mounted in the polishing line of the Gusevskiy Glass Works. The calibration of the reflexometer is carried out according to the GOST 2789-51. By means of this device only clean, degreased, and dry glass shall be examined. There are 4 figures and 2 Soviet references.

Card 2/2

L 10222-66

ACC NR: AF5028497

SOURCE CODE: UR/0286/65/000/020/0074/0074

AUTHOR: Mikhaylovskiy, Yu. K. 26

ORG: none

TITLE: Monochromator. Class 42, No. 175680

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 74

TOPIC TAGS: monochromator, optics, optical instrument, diffraction grating

ABSTRACT: This Author Certificate describes a monochromator with a horizontal-symmetrical optical scheme, containing a diffraction grating-turning mechanism. To increase the accuracy and automation of the process of directing the spectral lines on to the exit slit, the monochromator is equipped with a system of measuring diffraction gratings which are coupled to the sinusoidal mechanism. The latter form, with the aid of an auxiliary light source, an interference pattern on a photo-receiver. To compensate for errors arising as a result of deformations in the framework of the device, the latter is equipped with a correction system (see Fig. 1). The system consists of a second auxiliary light source, a folding mirror which directs the auxiliary light flux along the direction of the main flux, and a rotatable optical wedge. In addition, one or both slits of the device are made movable.

Card 1/2

UDC: 535.853.34

L 10222-66

ACC NR: AP5028497

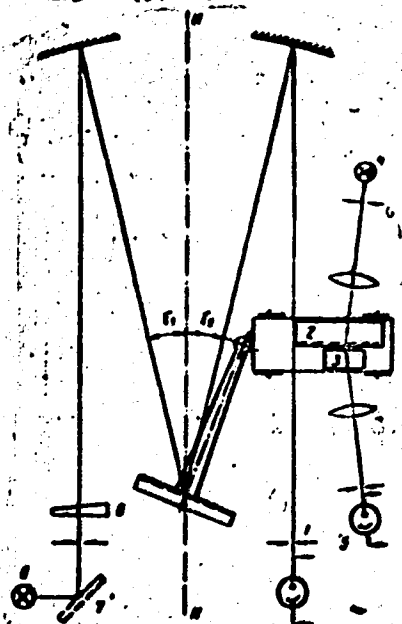


Fig. 1. 1 - Exit slit; 2 and 3 - system of diffraction gratings; 4 - auxiliary light source; 5 - photo-receiver; 6 - second auxiliary light source; 7 - folding mirror; 8 - rotatable optical wedge.

Orig. art. has: 1 figure.

SUB CODE: 20, 14/ SUBM DATE: 05Nov64

Card 22

MIKHAYLOVSKIY, Yu.M. (Krasnoyarsk)

Turning on pipelines installed outside the walls in winter. Vod.
i san. tekhn. no.9:38-39 S '60. (MIRA 13:11)
(Water-supply engineering. Low temperature)

MIKHAYLOVSKIY, YU. N.

✓ 3080* Installation for Studying the Anti-Corrosion Potential of Metal in Soil. Ustanovka dlia issledovaniia zaščitnogo potentsiala metala v pochve. (Russian.) N. D. Tomashov and Yu. N. Mikhailovskii. *Zashchita laboratorii*, v. 11, no. 11, 1955, p. 1380-1382.

Met
Circuit of installation for stabilization of electrode potential in soil during cathodic polarization. Change in cathodic current density with time during polarization of cast-iron electrode in soil. Effect of moisture of soil on corrosion rate. Circuit diagram, graph, table.

2

cross

RE ~~xxx~~

Inst. Physical Chem, AS USSR

MIKHAYLOVSKIY, YU. N.

10715* The Kinetics of Cathodic Processes Involved in the Corrosion of Metals in the Soils. Kinetika katodnykh protsessov pri korrozii metallov v pochve. (Russian.) N. D. Tomashov and Yu. N. Mikhailovskii. Doklady Akademii Nauk SSSR, v. 107, no. 8, June 1956, p. 853-858.

Study of migration of O in soil yields quantitative data for determining rate of cathodic processes responsible for corrosion of metals in various soils. Graphs. 8 ref.

MIKHAYLOVSKIY, YU. N.

Kinetics of electrode processes under moisture adsorption films. M. D. Tomazhuk and Yu. N. Mikhaylovskii. Doklady Akad. Nauk S.S.S.R. 110, 1020-1022 (1976). A method was developed for the study of electrochemical behavior of Al, Zn, and Cu underneath moisture adsorption films, with the detn. of the share of cathodic, anodic, and diff. influences during the operation upon the corroding element in an atm. of 100% humidity and lower. The app. is described in detail, and the data on the anodic polarization of Al, Zn, and Fe, and the cathodic polarization of Cu in an atm. 100, 75, and 50% humidity, and various c.d.s. are reported and discussed. W. M. Sternberg.

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A-2
Art.

RB/jrs
conf

MIKHAYLOVSKIY, YU.N.

USSR/Corrosion - Protection From Corrosion

J.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 14090

Author : Tomashov N.D., Mikhaylovskiy Yu.N.

Inst : Academy of Sciences USSR

Title : Mechanism of Electrochemical Corrosion of Metals on the Soil

Orig Pub : Dokl. AN SSSR, 1956, 108, No 4, 668-671

Abstract : In expanding the concepts of an electrochemical mechanism of corrosion in the soil there are pointed out the following characteristic types of macrocorrosion couples, the existence of which often determines the most pronounced destruction of metallic underground structures. 1. Macrocouples, due to different permeability to oxygen, of soil of different nature (clay, sand). 2. Macrocouples associated with local heterogeneity of soil. 3. Macrocouples formed as a result of boundary effect of the diffusion of O_2 in the soil at the edges of the

Card 1/2

- 2 -

M, K HAYLOVSKIY, Yu. N.

MIKHAYLOVSKIY, Yu. N., Cand Chem Sci., -- (diss) "Study of the
electrochemical processes of soil corrosion of metals." Mos,
[1957], 16 pp. (Acad Sci USSR, Inst of Phys Chemistry), 100
copies. (KL, 9-58, 113)

- 20 -

Метод электрохимического исследования атмосферной коррозии

AUTHORS: Kikhaylovskiy, Yu.N., Tomashov, N.D.

32-12-29/71

TITLE: The Method of the Electrochemical Investigation of Atmospheric Corrosion in the Case of a Relative Air Moisture of 100% and Less (Metod elektrokhimicheskogo issledovaniya atmosferno korrozii pri otnositel'noy vlazhnosti vozdukh ot 100% i nizhe).

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 12, pp. 1462-1466 (USSR)

ABSTRACT: In the introduction it is said that the quantitative data on the kinetics of electrochemical processes taking place under a moisture-adsorption layer are still lacking in scientific publications. Therefore such a method is suggested. For this purpose 2 foil strips of the metals to be investigated (length 100 mm, thickness 50 μ), which serve as electrodes, were placed between three glass plates of equal size (and 1.5 mm thickness) and were pressed together in a plexiglass stand. The front surfaces formed by the ends of the glass- and metal strips were ground and formed the working surfaces on which the wires of the line were led to the metal plates. All this was placed into an exsiccator, and on the upper surfaces of the plexiglass stand two moist strips of filter paper were placed, to which two copper sulphate electrodes for comparison were added. In the interior of the exsiccator a certain moisture content of the air (saturated with acid

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The Method of the Electrochemical Investigation of
Atmospheric Corrosion in the Case of a Relative Air
Moisture of 100% and Less

32-12-29/74

solution) was created, viz. a) moisture 100%, b) moisture 75% with NaCl content, and c) moisture 50% with $\text{Ca}(\text{NO}_3)_2$ content. The electric part of the exsiccator further consisted of a galvanometer, a battery of 150 V, a changeable resistance of 1.5-2.00 mg ohm, and one for 100.000 ohm, to this cathode a voltmeter was connected, the wiring circuit of which is described separately. Electric wiring makes it possible to maintain regulated polarization; the film of moisture forming on the front surfaces of the electrodes serves as electrolyte. In this connection it is pointed out that only the polished front surfaces of glass with metal had the property of adsorbing the layer of moisture, because such a layer does not form on plexiglass. Therefore, also the other surfaces (with the exception of the front surfaces) of the glass plates were coated with paraffin, so that the aforementioned adsorption on these surfaces became impossible. A number of experiments carried out in this connection is mentioned, the results of which are shown in form of drawings and in tables. There are 5 figures, 2 tables, and 7 Slavic references.

Card 2/3

The Method of the Electrochemical Investigation of
Atmospheric Corrosion in the Case of a Relative Air
Moisture of 100% and Less

32-12-29/71

ASSOCIATION: Institute for Physical Chemistry AN USSR (Institut fizicheskoy
khimii Akademii nauk SSSR).

AVAILABLE: Library of Congress

Card 3/3 1. Atmospheric corrosion 2. Moisture-Air relativity
 3. Electrochemical-Determination

MIKHAYLOVSKIY, Yu.N.; TOMASHOV, N.D.

Method for field investigation of corrosive properties of soils.
Zav. lab. 23 no.4:450-454 '57. (MLBA 10:6)

1. Institut fizicheskoy khimii Akademii nauk SSSR.
(Soils—Analysis) (Electrolytic corrosion)

TOMASHOV, M.D., prof., doktor khim. nauk, otvetstvennyy red.; YERESHOV, I.M.,
kand. tekhn. nauk, red.; LUNEV, A.F., kand. khim. nauk, red.;
MIRHAYLOVSKIY, Yu.N., kand. khim. nauk, red.; STRIZHEVSKIY, I.V.,
kand. tekhn. nauk, red.; SHCHIGOLEV, P.V., kand. khim. nauk, red.;
BANKVITSER, A.L., red. 1zd-va; KASHINA, P.S., tekhn. red.

[Theory and practice of corrosion protection for underground
installations; papers of the Sixth All-Union Conference on
Corrosion and Protection of Metals] Teoriia i praktika protivo-
korroziionnoi zashchity podzemnykh sooruzhenii; trudy VI Vsesoiuz-
nogo soveshchaniia po korrosii i zashchite metallov. Moskva, Izd-
vo Akad. nauk SSSR, 1958. 273 p. (MIRA 11:10)

1. Vsesoyuznoye soveshchaniye po teorii i praktike protivokor-
roziionnoy zashchity podzemnykh sooruzheniy. 6th, 1956.
(Electrolytic corrosion)

FLAS : BOX INFORMATION

Академия наук СССР. Институт физический химии

Estimatedly 30 barrels as follows. (vzp. 5) Every study 1 priority class
 approximately 100 barrels (Investigation on Corrosion of Metals (No. 31) are
 Methods and Instruments for Corrosion Testing) Moscow, No. 41 338, 1959.
 176 p. (Series: Its study, v. 7) Greatly enlarged. 3,000 copies
 printed.

Ser. Ed.: E. D. Tomazov, Doctor of Chemistry, Professor; Ed. of Publishing
 House: E. G. Ignorovi; Tech. Eds: G. A. Luts'kova and Z. V. Solov'eva;
 Editorial Board: E. D. Tomazov, A. V. Rykhotobskiy, Candidate of Chemistry,
 and P. V. Schenkovskiy, Candidate of Chemistry.

PURPOSE: This collection of articles is intended for scientific workers at research institutes and technical personnel of plant laboratories.

COVERAGE: The articles included in this collection deal basically with methods of corrosion investigation which have not yet been published in other periodical literature but are of definite interest for studying corrosion processes. A wide range of problems is covered. In addition to the methods discussed the article provides some experimental data which make possible full utilization of each individual method. In generalities are mentioned. In reference economy each article.

Dart, G.B., E.L. Hidaylovskaya, T.S. I. Kuznetsovskiy, and E.A. Smolovskiy. 1979. "The Effect of the Temperature of the Water on the Growth of the Tadpoles of the Frog (*Rana lessonae*)". *Trudy Vsesoyuznogo Nauchnogo Tsentra po Ekologii i Evolyutsii* 11: 11-14.

—RESEARCHER—DR. T. J. RAVITSKY, L.A. NIGLORE, and T. J. ALBERT.

of Electrons

Parlactone, I.P., and Linc. Research's Lab. Laboratory Methods for Investigating Volatile Lubricants

Strukture, I. I., N. N. Litvinov, and I. P. Gerasimov, A Method for Obtaining Anodic Polarization Curves by Means of Cathodic Polarization

Brata, S.A., and M.N. Sargayev. Electrochemical Evaluation of the Corrosion Resistance of Metals

Quintero, A.L. Investigation by Means of Programs of Change in the
and the Problem of Education. Study. School. Part 2. Construction.

Tomahawk, Ind., V.L. Modestov, and C.L. Blachovsky, Agents for

3

Method for Investigating the Behavior of Protective Films During the Corrosion of Metals Under Stress

5/15 1963

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Milkmaid, Sky, You.

MIKHAYLOVSKIY Yu N.

TOMASHOV, Nikon Danilovich. Prinimeli uchastiye: TYUKINA, M.N.; PALEOLOG, Ye.N.; CHERNOVA, G.P.; MIKHAYLOVSKIY, Yu.N.; LUNEV, A.P.; TIMONOVA, M.A.; MODESTOVA, V.N.; MATVEYEVA, T.V.; BYALOBZHESKIY, A.V.; ZHUK, N.P.; SHREYDER, A.V.; TITOV, V.A.; VEDENEYEVA, M.A.; LOKOTILOV, A.A.; BERUKSHETIS, G.K.; DERYAGINA, O.G.; FEDOTOVA, A.Z.; FOKIN, M.N.; MIROLYUBOV, Ye.N.; ISAYEV, N.I.; AL'TOVSKIY, R.M.; SHCHIGOLEV, P.V.; YEGOROV, N.G., red.izd-va; KUZ'MIN, I.F., tekhn.red.

[Theory of the corrosion and the protection of metals] Teoriya korrozii i zashchity metallov. Moskva, Izd-vo Akad.nauk SSSR, 1959. 591 p. (MIRA 13:1)

(Corrosion and anticorrosives)

PHASE I BOOK EXPLOITATION SOV/2216 9122/ADS

Soveshchaniye po elektromill. 4th, Moscow, 1956.

Trudy... [sbornik] (Transactions of the Fourth Conference on Electromechanics, Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 668 p. Errata slip inserted. 2,500 copies printed.
Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhicheskikh nauk.

Editorial Board: A. M. Franklin (Resp. Ed.) Academician, O. A. Yastin, Professor S. I. Zhdanov (Resp. Secretary), B. M. Kabanov, Professor S. I. Zhdanov (Resp. Secretary), B. M. Kabanov, Professor V. M. Koltotykin, Doctor of Chemical Sciences, V. V. Losav, P. D. Lukavskiy, Professor Z. A. Solovyeva, V. V. Sender, Professor, and O. M. Florinovich. Ed. of Publishing House: M. G. Regorov; Tech. Ed.: T. A. Prusakov.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVER PAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry, lastly sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection contains papers from different branches of electrochemical kinetics, double layer, theoretical and galvanic processes in metal electrodeposition and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

БЕРНУКОВ, Л. В. Anodic Passivation of Copper and Some of its

Card 20/38

Alloys in Phosphates

628

I. Vov, A. L., and A. V. Potvinay (Saratovskiy Gosudarstvennyy universitet imeni N. G. Chernyshevskogo, Mauchno-Issledovatel'skiy Institut khimii Saratovskogo Gosudarstvennogo universiteta-Saratov State University imeni N. G. Chernyshevskiy, Scientific Research Institute of Chemistry, Saratov State University). Anodic Oxidation of Copper in Hot Concentrated Alkaline Solutions. *612*

Tomashov, N.D., and V. N. Minaylovskiy (Institute of Physical Chemistry, Academy of Sciences, USSR)
Kinetics of Corrosion Processes Under Adsorbed Films of Moisture

Discussion [A. V. Pikel'shteyn]

PART VII. DIFFUSION KINETICS

2025/05/28

MIKHAYLOVSKIY, Yu.N.; TOMASHOV, N.D.

Using the method of polarization by intermittent currents in the investigation of corrosion processes in atmospheres with high ohmic resistance. Trudy Inst.fiz.khim. no.7:85-95 '59.
(MIRA 13:5)

(Electrolytic corrosion) (Polarization (Electricity))

5(2,4)
AUTHOR:

Demashov, E. D., Viskaylovskiy, Yu. N.

SOV/26-124-6-29/55

TITLE:

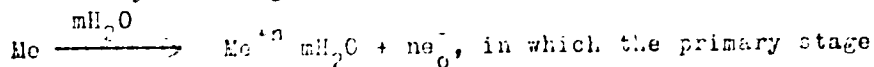
Mechanism of Anodic Dissolution of Metals in Soils (Mekhanizm anodnogo rastvoreniya metallov v pochvakh)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 6, pp 1285 - 1288 (USSR)

ABSTRACT:

For the dissolution mentioned in the title as well as for electrolytes the general equation holds:



of the process is a migration of the metal ion into the soil electrolyte. As far as the anodic process is accompanied by a hydration of the forming metal ions the presence of a certain amount of moisture in the soil is an indispensable condition (Ref 1). Greater variations in the moisture of natural soils may have a considerable influence upon the rate of anodic metal dissolution. In this connection the authors mention the investigation results of the aforesaid process in the case of "Armko" iron in soils of different

Card 1/1

Mechanism of Anodic Dissolution of Metals in Soils

30V, '20-124-6-29/55

moisture. Figure 1 gives anodic polarization curves obtained in the case of iron electrodes in sand with 1-20% moisture in which case the moisture was added in form of NaCl solution. From the results it can be seen that the stable potential of iron is shifted into the positive range in the case of decreasing soil moisture; the inhibitions of the anodic reaction increase. A similar dependence exists in loam soils. From the results obtained it can be seen that the density of the self-dissolution currents increases with decreasing soil moisture, i.e. in connection with making less complicated the cathodic process (Ref 1) whereas, the stable potential of iron is shifted on the general curve 1 into the positive range (Fig 1). Thus, the corrosion rate increases as calculated for the active (just moistened) anodic surface with decreasing soil moisture. If the this rate is calculated for the visible surface the former will increase only as long as the making less complicated at the cathodic process proceeds more rapidly than the shrinking of the active surface. In the case of a further decrease in moisture the entire rate of metal corrosion will decrease in consequence of the passivation of the basic surface of

Method for the Determination of Metals in Soils

1955, No. 10-11-12/55

the metal. There are 3 figures, 1 table and 6 references.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

PRESENTED: November 6, 1955, by V. I. Spitsyn, Academician

SUBMITTED: November 7, 1955

Card 1/2

ISAYEV, N.I.; Prinimali uchastiye: MIKHAYLOVSKIY, Yu.N.; BERUKSHTIS, G.K.

Atmospheric corrosion of steel wire reope. Trudy Inst.fiz.khim.
8:144-154 '60. (MIRA 14:4)

(Wire rope—Corrosion)

18 8300

27215
S/081/61/000/014/013/030
B103/B217

AUTHORS: Tomashov, N. D., Mikhaylovskiy, Yu. N.

TITLE: Electrochemical theory of underground corrosion of metals

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 14, 1961, 332, abstract
144182. (Tr. In-ta fiz. khimii. AN SSSR, 1960, vyp. 8,
190 - 216)

TEXT: The authors examined data on the effect of soil structure and properties (humidity, permeability) on cathodic and anodic processes in underground corrosion. It was found that the rate of uniform total corrosion I_{corr} of a metal in the soil can be calculated from the equation $I_{corr} = KI_K I_a / (I_K + I_a)$, where K is a constant, I_K is the density of the cathodic limiting current at an iron electrode in the soil concerned (oxygen permeability of soil), I_a is the density of the anodic current at a given potential. The rate of local corrosion (δ) can be estimated from the oxygen permeability of soil I_K and from its resistance (ρ): $\delta = AI_K / \rho$.

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Electrochemical theory of...

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B103/B217

where A is a constant. The possibility of formation of large macrofields is determined by the equation $I = B \Delta I_K / \Delta l f^{-1}$, where B is a constant. $I_K / \Delta l$ is the change of oxygen permeability in a soil section of length Δl . On the basis of these assumptions a device for estimating the corrosive activity of soils was designed and constructed. [Abstracter's note: Complete translation.]

Card 2/2

TOMASHOV, N.D.; MIKHAYLOVSKIY, Yu.N.; LEONOV, V.V.

. Investigating the work of differential aeration couples in soils.
Trudy Inst.fiz.khim. 8:217-225 '60. (MIRA 14:4)

(Soil corrosion)

TOMASHOV, N.D.; KRASNOYARSKIY, V.V.; MIKHAYLOVSKIY, Yu.N.

Field testing of the corrosion of steels in soils. Trudy Inst.fiz.
khim. 8:226-234 '60. (MIRA 14:4)

(Steel--Corrosion)

(Soil corrosion)

TOMASHOV, N.D.; LUNEV, A.F.; MIKHAYLOVSKIY, Yu.N.; LEONOV, V.V.

Determination of protective properties of metal coatings. Trudy
Inst.fiz.khim. 8:235-248 '60. (MIRA 14:4)

(Protective coatings)

TOMASHOV, N.D.; MIKHAYLOVSKIY, Yu.N.

Electrical method of determining the rate of penetration of an
electrolyte through protective films. Trudy Inst.fiz.khim. 8:249-
253 '60. (MIRA 14:4)

(Electrolytic corrosion—Testing)
(Electric testing)

TOMASHOV, N.D.; MIKHAYLOVSKIY, Yu.N.; LOPOVOK, G.G.

Testing of insulation coatings for cracking during flexure. Trudy
Inst.fiz.khim. 8:276-280 '60. (MIRA 14:4)

(Protective coatings—Testing)

TOMASHOV, N.D.; MIKHAYLOVSKIY, Yu.N.; LEONOV, V.V.

Kinetics of the deterioration of protective coatings on metals in electrolytes. Trudy Inst.fiz.khim. 8:291-296 '60. (MIRA 14:4)

(Protective coatings) (Electrolytic corrosion)

TOMASHOV, N.D.; MIKHAYLOVSKIY, Yu.N.; LEONOV, V.V.

Kinetics of cathodic processes in the corrosion of metals under
protective coatings. Trudy Inst.fiz.khim. 8:297-304 '60.

(MIRA 14:4)

(Protective coatings)

(Electrolytic corrosion)

29420

18 8300

S/081/61/000/017/058/166
B110/B138

AUTHORS: Tomashov, N. D., Mikhaylovskiy, Yu. N., Leonov, V. V.
TITLE: Study of the action of macrocorrosion pairs formed when a metal surface is partially protected by thin protective films
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1961, 293, abstract 1711218 (Tr. In-ta fiz khimii. AN SSSR, no. 8, 1960, 305 - 312)

TEXT: The authors investigated the effect of macrocorrosion pairs on protected and unprotected metals immersed in an electrolyte consisting of 0.5 N NaCl, 0.016 N H₂O₂ and 0.01 N HCl at -20°C. Protective materials used were: asphalt, paraffin, wax, bakelite varnish, nitrocellulose, drying oil, whit with drying oil and minium with drying oil. The protective films (PF) were 1.0 - 6.0 μ thick. Irrespective of the type of the PF an insulated electrode in couple with an uninsulated one always acts as the cathode. The corrosion current of the pair increases in the order Cu-Al-Fe-Zn. The presence of an incomplete PF on the metal surface leads to an improvement in the static potential of the electrode.
Card 1/2

X

Study of the action of macrocorrosion...

29420
S.081/61/000.017/058.168
B110/B138

and the strong localization of corrosion in the pores and places where the protective film is broken. The resistance of the PF is not only dependent on the properties of the material of which it is made but also on the corrosion potential of the metal in the aggressive medium in question. [Abstracter's note: Complete translation.]

X

Card 2/2

S/076/61/035/002/009/015
B124/B201

AUTHORS: Tomashov, N. D., Mikhaylovskiy, Yu. N., and Leonov, V. V.

TITLE: Mechanism of the electrochemical corrosion of metals under insulation coatings. I. Kinetics of the destruction of insulation coatings on metals in electrolytes

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 2, 1961, 367-372

TEXT: A study has been made of the electrochemical behavior of metal electrodes insulated by means of thin bitumen-, paraffin-, bakelite-, and other coatings. The electrodes were Pt, Cu, and Fe wires, 0.5 to 1 mm in diameter. The film was applied by dipping the electrode into liquid insulating material and then slowly and uniformly extracting it by a Warren motor. The thickness of the resulting film was determined by the extraction rate of the electrode and the viscosity of the insulating material. The capacity method was applied for measuring the film thickness; it amounted to 1 - 4 μ . The kinetics of the destruction of the insulation film on metals in electrolytes was measured with the aid of the capacity and the resistance of the insulated electrode in a 0.5 N

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Mechanism of the electrochemical...

S/076/61/035/002/009/015
B124/B201

NaCl solution; the measuring device is diagrammatically shown in Fig. 1. After electrode 1 was insulated, it was dipped into glass cell 2 filled with the electrolyte. Capacity and resistance were measured with a cylindrical auxiliary Pt electrode 3. The measurement was made with the equal-armed bridge 5 which was fed by generator 4 of the type 3Г2А (3G2A). The a-c amplitude did not exceed 20-25 mv. The bridge equilibrium was visually fixed with the oscilloscope 7 of the type ЭО-4 (EO-4), the amplifier 6 being connected to its input. Capacity and resistance were measured at determined time intervals after the electrode was dipped into the electrolyte. The tests were conducted at room temperature (20-22°C) within a maximum of 30 days. Fig. 2, a shows the curves of the change of capacity and resistance with time on a bitumen-film covered Pt electrode in 0.5 N NaCl. The capacity of the electrode rises and its resistance drops with time, which is correlated with the change of the film structure upon the action of the electrolyte. The authors theoretically infer from the measurement results that the deterioration of the insulation characteristics of coatings such as bitumen and the beginning of the corrosion process are chiefly connected with the penetration of the electrolyte into the micropores and defects of the film as far as near the metal sur-

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Mechanism of the electrochemical...

S/076/61/035/002/009/015
B124/B201

face, while the swelling of the film takes longer and is of no great importance. Fig. 2,6 shows that RC remains constant during a 30-day test of the Pt electrode under bitumen coatings. Fig. 3, a shows the dependence of the Pt electrode capacity under a bitumen coating on the initial frequency during 15 to 30 days. Fig. 3,6 shows the same in logarithmic coordinates. The curves of the change of capacity on Fe and Cu insulated with a thin bitumen film are given in Fig. 4. A decisive factor determining the initial rate of destruction of the insulation film is the electrochemical nature of the metal. G. V. Akimov and N. D. Tomashov are mentioned. There are 4 figures and 10 references: 7 Soviet-bloc and 3 non-Soviet-bloc. The two references to English language publications read as follows: C. Corfield, Gas., 21, 11, 35, 1945; E. A. Koenig, Oil, a.Gas J., 44, 20, 303, 1945.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii
(Academy of Sciences USSR, Institute of Physical Chemistry)

SUBMITTED: June 2, 1959

Card 3/5

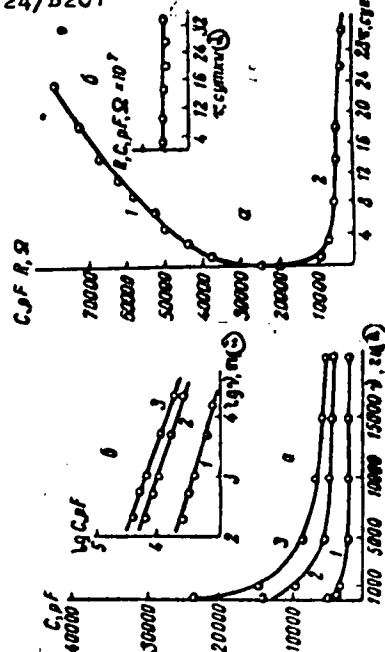
Mechanism of the electrochemical...

Legend to Fig. 2:
Dependence of the capacity and the resistance on a bitumen-insulated Pt electrode; a) 1, change of the electrode capacity with time at 200 cps; 2, change of the electrode resistance with time at 200 cps; ϕ) dependence RC on time. a) days.

Legend to Fig. 3: Dependence of the capacity of the bitumen-insulated Pt electrode on frequency; a) 1, at the beginning of experiment, 2, after 15 days, 3, after 30 days; ϕ) the same in logarithmic coordinates; a) cps.

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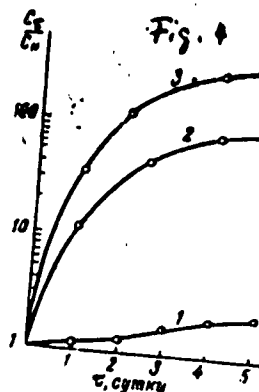
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B124/B201



Mechanism of the electrochemical...

S/076/61/035/002/009/015
B124/B201

Legend to Fig. 4:
Change of the capacity of electrodes
under a bitumen film with time: 1, on
Pt; 2, on Cu; 3, on Fe; C_0 - capacity of
the electrode at the beginning of ex-
periment, C_t - capacity of the electrode
after the time t (in days) from the
beginning of the experiment.



Card 5/5

18 8300

4016, 1138, 1208

S/076/61/035/003/010/023
B121/B203

AUTHORS: Tomashov, N. D., Mikhaylovskiy, Yu. N., and Leonov, V. V.

TITLE: Mechanism of electrochemical corrosion of metals under insulation coatings. II. Kinetics of cathodic processes during the corrosion of metals under insulation coatings

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 3, 1961, 588-594

TEXT: The authors studied the cathodic processes on metals (Pt, Cu, Fe) whose surface was coated with thin layers (1-6 μ) of an insulating film (bitumen, Bakelite, and nitrocellulose lacquers) in solutions of corrosive properties. They studied the cathodic polarization and the change in capacity of insulated and noninsulated platinum electrodes in a solution of 0.1 N Fe^{2+} + 0.1 N Fe^{3+} , and observed an intense polarization at the insulated electrode, even at low cathode current density. The occurrence of electron conductivity in individual parts of the insulating film of platinum is explained with the electron conductivity in the film itself. A gradual increase of the electrochemically active metal surface occurs during the cathodic polarization, which facilitates the electrochemical process. During

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B121/B203

Mechanism of ...

the electrolytic process, the layer round the electrode is in an active state promoting the cathodic process. Therefore, cathodic processes may also occur in the thinnest spots of the insulating film. The mechanism of metal corrosion under porous insulating materials was discussed. The cathodic process was assumed to take place not only on the bare metal surface but also in the finest sections of the insulating film. Macro- and microcorrosion pairs occur on the metal surface insulated with a fine porous insulating film, the free metal surface acting as anode, and the insulated part as cathode. The density of the corrosion current does not only depend on the electrochemical nature of the electrode metal but also on the electric properties of the insulating material. The authors thank A. A. Novikov for assisting in the experiments. There are 5 figures and 13 references: 12 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: Yasushi Soto, Masuo Kamioka, Yuhei Nemoto, J. Elektrochem. Soc. Japan, 26, 1, E-26, 1958.

ASSOCIATION: Institut fizicheskoy khimii Akademiya nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

SUBMITTED: July 3, 1959

Card 2/2

168500

21997

S/076/61/035/004/002/018
B106/B201

AUTHORS: Tomashov, N.D., Mikhaylovskiy, Yu.N., and Leonov, V.V.

TITLE: Mechanism of the electrochemical corrosion of metals
under insulating coatings

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 4, 1961, 736 - 742

TEXT: III. Study of the mode of operation of macrocorrosion pairs
forming with partial insulation of a metal surface by thin protective films

In continuation of earlier studies on the corrosion processes in metals protected by insulating coatings (Ref. 1: Zh. fiz. khimii, 3, 400, 1960; Ref. 2: Zh. fiz. khimii, 35, 367, 1961), the authors conducted a systematic investigation of the mode of operation of the macrocorrosion pair formed from an insulated and the corresponding noninsulated metal in an electrolyte solution. The specimens were prepared from wire electrodes 1 mm in diameter and 50 mm in length, made of copper, iron, aluminum, and zinc. The insulation materials used were bitumen, paraffin, bakelite lacquer, nitrocellulose, varnish, zinc white on varnish, and Fe_2O_3 on

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B106/B201

Mechanism of the electrochemical ...

varnish; the coatings were between 1 and 6 μ thick. The method of applying the coatings has already been described in the abovementioned papers. The electrolyte solution was $0.5 \text{ N NaCl} + 0.016 \text{ N H}_2\text{O}_2 + 0.01 \text{ N HCl}$. The experiments were made at room temperature and took up to 48 hours. It was found that an insulated iron electrode always behaved as a cathode as compared to a noninsulated iron electrode, regardless of the nature of the insulation material. The maximum density of the corrosion current with iron electrodes was in most cases attained 12-15 hours after the beginning of the experiments. With equal thickness of the coating, the macro-corrosion current on an electrode with a bitumen coating was found to be 5 times as strong as on an electrode coated with varnish. The addition of pigmenting substances (excepting zinc white) to nitrocellulose and varnish effects an increase of the density of the maximum corrosion current. Similar conditions arise also in insulated zinc and aluminum electrodes. The initial capacity of insulated electrodes rises in the electrolyte solution by 2-3 orders of magnitude in the course of 48 hours, while the resistance drops to about the same extent. Such phenomena do not appear on noninsulated electrodes. The electrochemical nature of the

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electrode metal has an effect upon the corrosion current of the macro-corrosion pair. For the same insulation material (Fe_2O_3 on varnish), the density of the maximum corrosion current grows in the succession copper < aluminum < iron < zinc, i.e., with dropping corrosion stability of the metal in the electrolyte solution. The mechanism of corrosion under the insulating coating was also studied. A porous insulating coating on the metal surface caused the steady electrode potential to turn more positive, and corrosion to be strongly concentrated in the pores and defects of the coatings. The results of the present work show that, regardless of the nature of the insulation material, the rate of destruction of thin porous insulating coatings is in the first place dependent upon the electrochemical nature of the electrode metal and of the corrosive medium. The coating will retain its insulating properties to a degree proportional to the stability of the metal in the respective electrolyte solution. This result is of a great practical importance. N.I. Zhuravleva is thanked for her active assistance in the experimental work. The authors intend to make a special study of diffusion phenomena on insulated electrodes. There are 6 figures, 2 tables, and 4 Soviet-bloc references.

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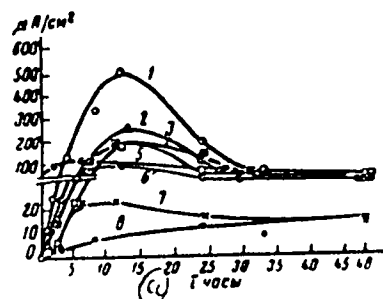
Mechanism of the electrochemical ...

ASSOCIATION: Akademiya nauk SSSR Institut fizicheskoy khimii
(Academy of Sciences USSR Institute of Physical Chemistry)

SUBMITTED: July 13, 1959

Fig. 2: Change of macrocorrosion current with time in vapors formed from noninsulated and insulated iron electrodes in the solution of 0.5 n NaCl + 0.016 n H₂O₂ + 0.01 n HCl. The insulated electrode is coated: (1) by bitumen; (2) by nitrocellulose with Cr₂O₃; (3) by bakelite lacquer; (4) by minium and oil-varnish; (5) paraffin; (6) oil-varnish; (7) zinc white and oil-varnish; (8) nitrocellulose; a) hr

Card 4/6



TOMASHOV, N.D., MIKHAYLOVSKIY, YU.N., LEONOV, V.V. AND NIKITENKO, YE.A.

"Electrochemical protection of buried structures from stray current corrosion by means of unilaterally polarizing anodes."

Report submitted to the Second Intl. Congress on Corrosion of Metals
New York City 11-15 March 1963

INSTITUTE OF PHYSICAL CHEMISTRY, MOSCOW

L 35589-65 EWT(m)/EWP(b)/EWA(d)/EWP(t) JD/WB

ACCESSION NR: AT3007224

S/2951/63/000/000/0359/0367 /7

AUTHOR: Mikhaylovskiy, Yu. N.; Tomashov, N. D.; Nikitenko, Ye. A.

16
8+1

TITLE: Unilaterally polarized metallic protectors for electrochemical prevention of corrosion caused by stray currents in underground equipment

SOURCE: Korroziya metallov i splavov; sbornik. Moscow, Metallurgizdat, 1963, 359-367

TOPIC TAGS: corrosion protection, underground equipment, electrochemical process, electric drainage

ABSTRACT: The general principles of protectors in underground corrosion prevention are studied. It is shown that a system of unilaterally polarized protectors may be used where there are relatively low stray underground currents. The corrosion prevention method which is examined is free of many of the disadvantages inherent in the electrical drainage method. The proposed system automatically draws off the current from the underground equipment in the anode zones and prevents the current in the cathode zones from reaching the equipment through the protector. The effectiveness of the method is determined by the electrochemical characteristics of the protector. Protectors made of various metals (including

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ACCESSION NR: AT3007224

iron) may be used, depending on individual conditions. It is shown that altering stray currents in the earth may be used for corrosion prevention in pipelines, underground cables, etc. In this case, iron protectors are most suitable. "The authors express their sincere thanks to V. V. Leonov for his help in carrying out the experimental part of this work." Orig. art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 009

OTHER: 002

Card 2/2

MIKHAYLOVSKIY, Yu.N.

Corrosion of iron in humid soils under the effect of an
alternating current. Zhur.prikl.khim. 36 no.3:551-557 My '63.
(MIRA 16:5)

1. Institut fizicheskoy khimii AN SSSR.
(Iron—Corrosion) (Electric currents, Alternating)

MIKHAYLOVSKIY, Yu.N.

Corrosion of lead in humid soils during polarization by alternating current. Zhur.prikl.khim. 36 no.6:1273-1278 Je '63.
(MIRA 16:8)

1. Institut fizicheskoy khimii AN SSSR.
(Lead—Corrosion) (Polarization (Electricity))

L 17762-63
 ACCESSION NR: AP3006183
 EWP(q)/ENT(m)/BDS AFFIC/ASD JD
 8/0080/63/036/007/1530/1535
 56
 54
 AUTHOR: Mikhaylovskiy, Yu. N.
 TITLE: Corrosion of aluminum in damp soils under the influence of alternating current 4 27
 SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 7, 1963, 1530-1535
 TOPIC TAGS: Corrosion, aluminum, alternating current, polarisation, underground installation, soil acidity
 ABSTRACT: Studies on the corrosion of aluminum polarized with alternating current in various soils showed that the rate of corrosion with low-density current is a function of the resistance of the protective film in the particular soil. With high-density current (over 10 mA/sq. cm), the rate is not dependent upon soil acidity. Break-down of the protective film in the anode current half-cycle depends both on the length of the half-cycle and the magnitude of the electrode potential. Because of slow disintegration of the oxide film, the rate of corrosion at low current densities is largely dependent on the frequency of the current; this correlation is less evident at high current densities. Like other electronegative

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L 17762-63

ACCESSION NR: AP3006183

2

metals, aluminum shows poor resistance to alternating current-induced corrosion, and the rate is determined by the rate of the anode ionisation reaction, which is always equivalent to the faradic component of the alternating current. Wandering alternating currents in the earth are just as liable to produce corrosion of underground aluminum installations as wandering direct currents. Thus anti-corrosion measures must be devised to protect such installations. "The author expresses his heartfelt thanks to N. D. Tomashov for his valuable comments in the discussion of this study." Orig. art. has: 4 figures.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AS SSSR)

SUBMITTED: 06Jan62

DATE ACQ: 25Sep63

ENCL: 00

SUB CODE: CH

NO REF SOV: 001

OTHER: 003

Card

2/2

44894

S/076/63/037/001/012/029
B101/B186

17.8300

AUTHOR: Mikhaylovskiy, Yu. N. (Moscow)

TITLE: Electrochemical mechanism of the corrosion of metals effected by alternating current. I. Corrosion and electrochemical behavior of iron in electrolytes on polarization by alternating current

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 1, 1963, 132-137

TEXT: The polarization curves of Fe in 0.5 N NaCl and 0.1 N HCl+0.4 N NaCl were plotted on polarization by d-c or sinusoidal a-c of 50 cps. In neutral and acid solutions, a-c polarization was much lower than d-c polarization. It is assumed that the forward reaction $\text{Fe} \rightarrow \text{Fe}^{2+} + 2e$ proceeds easily during the anodic half-period and the reverse reaction proceeds easily during the cathodic half-period. Corrosion of Fe in neutral or alkaline solutions is low, as the iron ions formed in the anodic half-period are reprecipitated during the cathodic half-period. From the decrease in phase shift angle from 80° at 5 ma/cm^2 to 65° at

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Electrochemical mechanism of the ...

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B101/B186

60 ma/cm², a current i_c of the double layer charge reversal is calculated to be 54 ma/cm² for 60 ma/cm², and a Faraday current i_F is calculated to be 25 ma/cm². In acid media, the reverse course of the cathodic polarization curve does not coincide with the direct course. Hence, the electrode surface is assumed to change. For a square-wave a-c at 5 cps, the cathodic polarization curves in 0.5 N NaCl, 0.5 N NaCl + 0.1 N KOH, and 0.4 N NaCl + 0.1 N HCl at an anodic current density $i_a = 12$ ma/cm² were plotted to eliminate the effect of i_c . Results: at $i_c < i_a$, the cathodic potential is a linear function of $\log i_c$. As soon as $i_c > i_a$, the potential of Fe rapidly shifts into the discharge region of hydrogen ions. The effect of the HCl concentration on the dissolution rate of iron was examined in 1 N NaCl for a square-wave at 5 cps a-c, with [HCl] being changed from 10⁻⁴ to 1 N. Up to 10⁻³ N HCl, the dissolution rate increased but slightly. Between 10⁻³ and 5·10⁻² N HCl, the dissolution rate was proportional to the acid concentration. Conclusions: The dissolution rate of Fe on a-c polarization in non-passivating media depends on the rate of

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Electrochemical mechanism of the ...

S/076/63/037/001/012/029
B101/B186

the cathodic depolarization processes. The dissolution rate is accelerated by the presence of oxidants reducing on the iron at a potential more positive than that of the reversible iron electrode. There are 4 figures.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii
(Academy of Sciences USSR, Institute of Physical Chemistry)

SUBMITTED: September 30, 1961

Card 3/3

S/076/63/037/002/008/018
B101/B186

AUTHOR: Mikhaylovskiy, Yu. N. (Moscow)

TITLE: Electrochemical mechanism of metal corrosion influenced by alternating current. II. Dissolution of lead on polarization with alternating current

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 2, 1963, 340-346

TEXT: Studies were made on the corrosion of lead due to polarization by a 50-cps sinusoidal or a 5-cps square-shaped a-c in 0.5 N NaCl, 1 N KNO₃, 0.001 - 1 N H₂SO₄, 0.001 - 1 N HNO₃, and 1 N CH₃COOH using a lead electrode rotating at 2500 rpm. Results: In general the corrosion rate increased with the density of the a-c and depended on the nature of the medium. With 50 cps a-c, the double-layer recharging current was only 17-20% of the polarization current. In neutral media the corrosion rate of Pb was low owing to the periodical ionization and precipitation of its ions. The rate of dissolution in neutral media depended on the cathodic oxygen depolarization which proceeds in parallel with the discharging of the Pb ions: ✓

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Electrochemical mechanism of ...

S/076/63/037/002/006/018
B101/B186

$O_2 + 2H_2O \rightarrow 4OH^-$ (i_{O_2}) and tended toward a constant value limited by the diffusion rate of the oxygen. In H_2SO_4 the rate of corrosion was almost independent of the acid concentration within the range from 0.001 to 1 N. In oxidizing acids, the rate of corrosion was proportional to the acid concentration. For HNO_3 , $i_{corr} = A[HNO_3]^{0.5}$; A is a constant. With frequencies of more than 5 cps, the metal ions forming in the anodic half-period can no longer diffuse through the diffusion layer so that the total corrosion effect is determined mainly by the kinetics of the cathodic processes. There are 5 figures.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii
(Academy of Sciences USSR, Institute of Physical Chemistry)

SUBMITTED: November 4, 1961

Card 2/2

S/076/63/037/003/005/020
B101/B215

AUTHOR: Mikhaylovskiy, Yu. N.

TITLE: Electrochemical mechanism of corrosion of metals under the action of a-c. III. Dissolution of zinc during polarization by a-c

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 3, 1963, 553-558

TEXT: The electrochemical and corrosive behavior of zinc was studied in 0.5 N NaCl or 0.1 N HCl+0.4 N NaCl at room temperature under the action of 50 cps sinusoidal a-c or 5 cps rectangular a-c. Results: (1) The rate of Zn dissolution by a-c in a neutral solution at a current density up to 30 - 40 ma/cm² during polarization depends on the rate of cathodic reaction of oxygen ionization; at higher current densities it depends on the discharge of H⁺ ions. (2) In an acid solution, the rate of Zn dissolution depends mainly on the discharge of H⁺ ions in the cathodic half-period. (3) In general the rate of metal dissolution in acid solutions is proportional to the current density of polarizing a-c. In Card 1/2

Electrochemical mechanism of ...

S/076/63/037/003/005/020
B101/B215

a weakly acid solution the dissolution rate increases with the H^+ concentration. In strongly acid solutions this dependence no longer exists.
(4) The self-dissolution of Zn explains the higher rate of Zn dissolution in acid solutions as compared with the value calculated theoretically.
There are 4 figures.

ASSOCIATION: Akademiya nauk SSSR Institut fizicheskoy khimii (Academy of Sciences USSR Institute of Chemical Physics)

SUBMITTED: November 21, 1961

Card 2/2

L 9905-63

EWI(q)/EWT(m)/EDS--AFITC/ASD--JD/JG

ACCESSION NR: AP3000430

S/0076/63/037/005/1196/1200

AUTHOR: Mikhaylovskiy, Yu. N.

55
53

TITLE: Electrochemical mechanism of metal corrosion by alternating current.
4. Dissolution of aluminum and magnesium during polarization by alternating current

SOURCE: AN SSSR. Zhurnal fizicheskoy khimii, v. 37, no. 5, 1963, 1196-1200

TOPIC TAGS: aluminum, magnesium, polarization by alternating current, anode, ionization reaction

ABSTRACT: The electrochemical and corrosive behavior of aluminum and magnesium during polarization by alternating current in various electrolytic media was studied. The dissolution rate of these metals under the effect of alternating currents of slight density depends upon the resistance of the protective film in the given medium. The dissolution rate of aluminum and magnesium does not depend upon the hydrogen ion concentration when large densities of polarizing current are used. The breaking of the protective film on aluminum in an anode

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L 9905-63

ACCESSION NR: AP3000430

2

half-period is determined by the duration of the anode half-period and magnitude of electrode potential. The dissolution rate of aluminum and magnesium during polarization by alternating current is determined by the rate of the anode ionization reaction. "Author sincerely thanks Professor N. D. Tomashov for his constant interest, attention and valuable advice during the writing and discussion of this article." Orig. art. has: 6 figures.

ASSOCIATION: Akademiya nauk SSSR (Academy of Sciences, SSSR) Institut Fizicheskoy khimii (Institute of Physical Chemistry)

SUBMITTED: 23Nov61

DATE ACQ: 18Jun63

ENCL: 00

SUB CODE: 00

NR REF SOV: 006

OTHER: 000


Card 2/2

S/020/63/148/003/029/037
B101/B186

AUTHOR: Mikhaylovskiy, Yu. N.

TITLE: Dissolution and passivation of titanium in sulfuric acid during polarization with alternating current

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 3, 1963, 617 - 619

TEXT: The processes underlying the passivation of titanium were experimentally studied. Titanium was passivated in 10 N sulfuric acid with an asymmetric square-shaped 10-cps alternating current. The cathodic current density i_c was 20 ma/cm² and was kept constant; the anodic current density i_a was varied between 0 and 20 ma/cm². The dissolving rate of Ti and its passivation were determined. Results: Increasing i_a improved the potential of Ti during the anodic half-cycle. The anodic potential was stabilized for all i_a ; thus, the anodic reactions were not inhibited up to a potential of +1.0 v. In the cathodic half-cycle, the delay in the discharge of H⁺ ions depended on the preceding anodic potential in spite of $i_c = \text{const.}$ A

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Dissolution and passivation of...

S/020/63/148/003/029/037
B101/B186

positive shift of the anodic potential by +0.2 v shifted the cathodic potential by -0.12 to -0.15 v each. At an anodic potential of +0.2 v, Ti ionization rapidly decreased owing to the formation of a passivating layer, and Ti dissolution ceased at +1.0 v. Conclusion: The passivating layer consists of oxygen adsorptively bound to the metal but again released in the cathodic half-cycle, and of more firmly bound oxides which increase the H^+ overvoltage and are slowly and incompletely dissolved during the cathodic half-cycle. In the anodic half-cycle the defective spots first affected in the passivating layer are those on which adsorbed oxygen was reduced. The bonds in the passivating layer are rearranged with increasing occupation of the electrode by adsorbed oxygen. The proportion of oxide compounds in the passivating layer depends on the anodic potential. Thus titanium is passivated by an adsorptive layer in which oxygen is bound in two ways. There are 3 figures.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

PRESENTED: May 12, 1962, by A. N. Frumkin, Academician

SUBMITTED: October 12, 1962
Card 2/2

L 12/18-63

EWB(q)/EWT(m)/BOS AFETC/ASD JD/WB

S/0020/63/150/004/0852/0855 57

ACCESSION NR: AP3001/12 56

AUTHOR: Tomashov, N. D.; Strukov, N. M.; Mikhaylovskiy, Yu. N.

TITLE: The effect of alternating current frequency on the speed of corrosion of titanium in sulfuric acid 14

SOURCE: AN SSSR. Doklady, v. 150, no. 4, 1965, 852-855

TOPIC TAGS: electrochemical properties of titanium, corrosion properties of titanium, polarization of titanium, titanium

ABSTRACT: The investigation of the electrochemical and corrosion behavior of titanium during its polarization with a sinusoidal variable current frequency showed that, with an increase of frequency of the polarizing current, the polarizing capability of the electrode in the anodic and in the cathodic half-period is decreased. This is additionally connected with the presence of current capacity and the explanation of easier electrochemical reactions on the surface of the electrode in the anodic and cathodic half-periods. The corrosion of titanium at lower frequencies and low densities of the polarizing current is greater than the corrosion at higher frequencies. However, a reverse effect is observed with very high densities of the polarizing current. The

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ACCESSION NR: AF3001412

examination of experimenting material shows that the variable current intensifies the process of anodic dissolution of titanium as a result of the destruction of the passive state of the electrode in the cathodic half-period. It appears that at high frequencies of the variable current in the anodic half-period when the surface of metal contains mainly the adsorbed oxygen, the activation of metal in the cathodic half-period is much greater, and thus, the dissolution of titanium is greater. At low frequencies the metal surface is covered mainly with the chemically bound oxygen in the form of oxide layers which is not completely reduced in the cathodic half-period and therefore the active surface of the metal is smaller and the speed of dissolution of the metal is smaller. Orig. art. has: 5 graphs.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences SSSR)

SUBMITTED: 29Jan63

DATE ACQ: 01Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 003

OTHER: 000

Card 2/2

MIKHAYLOVSKIY, Yu.N.

Corrosion of fully polarized two-electrode systems under the effect of
alternating current. Zhur.prikl.khim. 37 no.1:118-126 Ja '64.
(MIRA 17:2)

1. Institut fizicheskoy khimii AN SSSR.

MIKHAYLOVSKY, Yu. N.

Effect of the mixing of a medium on metal corrosion rate under
the effect of low-frequency square-wave alternating current.
Zhur. prikl. khim. 37 no. 4:789-796 Ap '64. (MIRA 1:64)

I 17526-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) ASD(f)-2/ASD(m)-3/AFMDC MJW/JD/LW/WB

ACCESSION NR: AP5000512

S/0080/64/037/011/2528/2530

AUTHOR: Mikhailovskiy, Yu. N., Lopovok, G. G., Tomashov, N. D.

TITLE: Corrosion of IKh18N9T stainless steel under the influence of an alternating current B

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 11, 1964, 2528-2530

TOPIC TAGS: steel corrosion, polarization corrosion, stainless steel, steel passivation, steel IKh18N9T

ABSTRACT: Studies on the electrochemical behavior of IKh18N9T steel indicated that the corrosion rate during polarization with a 50-cycle current in neutral and acid solutions is determined basically by the rate of the cathodic reactions of oxygen ionization and hydrogen ion discharge. With a given alternating current density, polarization increases with the hydrogen ion concentration in the solution. No passivation occurs, even in 10 N H₂SO₄, during alternating current polarization with densities up to 100 ma/cm² because the passivating layer does not have enough time to form during the anodic semicycle. Orig. art. has 3 graphs.

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L 17526-65
ACCESSION NR: AP5000512

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical
Chemistry, AN SSSR)

SUBMITTED: 13Dec62

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 004

Card 2/2

Мирн. И. А. К. Я. Ю. Н.

Unit for the study of the... of the...
low frequency... of the...
asymmetry. Unit for... of the...

1. Initial frequency... of the...

MIKHAYLOVSKIY, Yu.N. (Moskva)

Apparatus for studying electrochemical and corrosion processes taking place on electrodes during polarization by pulsating or alternating currents with varying degrees of asymmetry. Zhur. fiz. khim. 37 no.4:937-939 Apr '61. (MIRA 17:7)

1. Institut fizicheskoy khimii AN SSSR.

ACCESSION NR: AP4034586

S/0076/64/038/004/0995/0998

AUTHOR: Mikhaylovskiy, Yu. N.

TITLE: Corrosion of metals by the action of alternating current and agitated media.

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 4, 1964, 995-998

TOPIC TAGS: corrosion, alternating current, diffusion, diffusion layer boundary, polarization, agitation, agitation rate, Faraday's law

ABSTRACT: The test method described previously by the author (Zh. fiz. khimii, 37, 946, 1963) was used in this study of the effect of the rate of rotating the disc electrode on the corrosive current density formed by polarization by alternating current frequencies of 0.04-50 cycles/second. The corrosion studies were run on iron in a solution of 0.5N NaCl + 0.01N HCl + 0.0N Fe³⁺ and on lead in 1N KNO₃. Equilibrium was established in the systems in 1 to 0.1 seconds as the electrode rotation was increased from 5 to 50 revolutions/second. At frequencies below 5 cycles the corrosive effect on the metal was determined primarily by the diffusion of the metal ions in the electrolyte past the boundary of the diffusion layer

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ACCESSION NR: AP4034586

during the anodic half cycle of the current. Then the rate of corrosion approached that calculated theoretically according to the Faraday value. When the frequency of the polarizing current was more than 5 cycles, an insignificant amount of the metal ions succeeded in diffusing (during the anodic half cycle) past the limits of the diffusion layer. This was confirmed by the insignificant corrosion of metals upon polarization with alternating current of more than 5 cycles in media containing no oxidants. The increased corrosion on the metals with increased agitation at frequencies > 5 cycles/sec. was attributed to the alleviated transport of the depolarizer which is reduced on the electrode in the cathodic half cycle. Decreasing the agitation of the media shifted the frequency limit to lower values. Orig. art. has: 4 figures.

ASSOCIATION: Akademiya nauk SSSR (Academy of Sciences SSSR) Institut fizicheskoy khimii (Institute of Physical Chemistry)

SUBMITTED: 07May63

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 000

Card 2/2

ACCESSION NR: AP4034587

8/0076/64/038/004/1001/1003

AUTHOR: Mikhaylovskiy, Yu. N.

TITLE: Rectification of alternate current and metal corrosion in multiple electrode systems

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 4, 1964, 1001-1003

TOPIC TAGS: multiple electrode system, current rectification, metal corrosion, oxide layer, aerating property, corrosion rate, polarization, anode dissolution

ABSTRACT: Rectification of the alternate current and increase of the corrosion process in such systems are not always determined by the aerating properties of the oxide layers; the non-linear character of the polarization curves and their asymmetry with respect to the corrosion potential, both in anode and cathode-controlled systems, are the main determinants. The effect of the appearance of a constant component and increase of corrosion are particularly manifest upon polarization by alternate current in corrosion systems with cathode control. In systems with anode control, Fe/Al, or Fe/Zn electrodes are quite typical for showing current rectification and increase of the corrosion rate upon polarization by

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ACCESSION NR: AP4034587

alternate current. Such effect is also seen upon polarization of 2 electrodes of the same metal by direct or alternate current even in neutral media. The shift of cathode potential in the range of the hydrogen discharge reaction disrupts the symmetry of the system. Thus polarization of electrochemical systems by direct and alternate current may lead to increase of the direct current component and accelerate the process of anode dissolution. Orig. art. has: 4 figures.

ASSOCIATION: Akademii nauk SSSR, Institut fizicheskoy khimii (Academy of Sciences, SSSR, Institute of Physical Chemistry)

SUBMITTED: 07May63

ENCL: 00

SUB CODE: GC, MM

NO REF SOV: 002

OTHER: 007

Card 2/2

ACCESSION NR: AP4041758

8/0076/64/038/006/1612/1615

AUTHOR: Mikhaylovskiy, Yu. N.

TITLE: Corrosion of titanium in sulfuric and hydrochloric acid solutions with alternating current polarization.

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 6, 1964, 1612-1615

TOPIC TAGS: titanium, corrosion, passivation, surface property, electrochemistry, polarization

ABSTRACT: The article considers the effect of the concentration of sulfuric and hydrochloric acid on the electrochemical and corrosion behavior of titanium (VT-1) upon polarization with different frequency square wave current. The determination of the rate of corrosion of titanium showed that as long as the electrode potential remains below 0.2 v during the anodic period, the corrosion effect is proportional to the duration of the anodic half cycle. The maximum corrosion current was observed with titanium at 10 cps, and it was equal to 5 ma/cm². It was concluded that the intense dissolution of titanium in acid solutions upon a.c. polarization results from the fact that during the cathode half cycle the passivated state of

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ACCESSION NR: AP4041758

the electrode is disrupted. In the following anodic half cycle the active metal is dissolved and again passivated. When the frequency is high the stronger oxide type films do not dissolve and thus "freezing" of these oxide residues of the passivated film takes place. The absorbed oxygen is electrochemically reduced during the cathodic half cycle. Thus, by the end of the cathodic half cycle only those passivated areas remain on the electrode in which there is a predominantly oxide type bonding. During the anodic half cycle the dissolution of metal takes place initially at the active points which occurred as a result of the reduction of the adsorbed oxygen. Orig. art. has: 4 figures.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry Academy of Sciences SSSR)

SUBMITTED: 22Mar63

ENCL: 00

SUB CODE: MM

NO REF SOV: 006

OTHER: 005

Card 2/2

MIZUAYA, TOSHIKI.

Summary: 1. MIZUAYA TOSHIKI, born 1924, is a Japanese
navigational officer. He is a member of the Japanese Navy.

2. He is a member of the Japanese Navy.

MIKHAYLOVSKIY, Yu.N.

Corrosion of titanium in sulfuric and hydrochloric acid
solution in the polarization by alternating current.
Zhur. fiz. khim. 38 no.6:1615-1616 June '64.

(MIRA 18:3

1. Institut fizicheskoy khimii AN SSSR.

MIKHAILOVSKIY, Yu.N.; LEONOV, V.V.; TOMASHOV, N.D.

Measuring the resistance of insulating protective coatings immersed
in an electrolyte. Zashch. met. 1 no.5:577-582 S-O '65. (MIRA 18:9)

1. Institut fizicheskoy khimii AN SSSR.

1. The permeability of polymer films on the basis of

polyethylene terephthalate (PET) is investigated. The results are presented in the form of graphs and tables. (MIRA 18:11)

2. The permeability of polymer films on the basis of polyethylene terephthalate (PET) is investigated. The results are presented in the form of graphs and tables. (MIRA 18:11)

L 23889-66 EWT(m)/EMP(j)/T/EMP(t) IJP(c) JD/NS/RM
ACC NR: AP6008627 (N) SOURCE CODE: UR/0365/65/001/006/0698/0702

AUTHORS: Serafinovich, V. B.; Mikhaylovskiy, Yu. N.

ORG: All-Union Scientific Research Institute for Construction of Mains
(Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu magistral'nykh truboprovodov)

TITLE: Effect of moisture permeability of polymeric films upon the iron corrosion rate

SOURCE: Zashchita metallov, v. 1, no. 6, 1965, 698-702

TOPIC TAGS: iron, corrosion rate, corrosion protection, protective coating, polyvinyl chloride, polyethylene plastic / V-118 polyvinyl chloride

ABSTRACT: The rate of corrosion of Armco iron was investigated as a function of moisture permeability of polyethylene (I) and of polyvinyl chloride V-118 (II) covering films. The study was of considerable interest because the polymeric films are widely used as protective coverings for underground and naval metallic equipment. Moisture permeability of the films and iron corrosion (measured by increase of sample weight) were determined at 20C in an atmosphere of constant moisture content (40, 70, and 98%). It was established that the corrosion process was independent of the moisture permeability of the covering when experiments were conducted in an atmosphere of uncontaminated moisture. The process was entirely a

UDC: 620.198

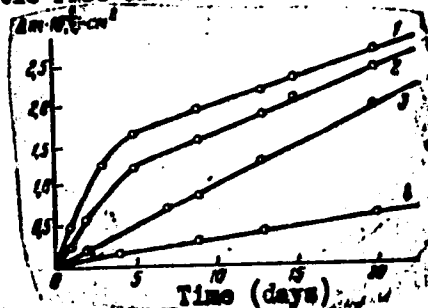
Card 1/2

L 23889-66

ACC NR: AP6008627

function of the kinetics of the electrochemical processes taking place at the interface of the adsorption films of moisture and the metal surface. Presence of aggressive substances on the surface of the metal, as well as their penetration by diffusion through the protective films, results in a drastic rise of the corrosion rate, as can be seen in Fig. 1.

Fig. 1. Increase of weight of iron samples with surface underneath the polymeric films activated with NH_4Cl as function of the time spent in atmospheres with various moisture content: material, film thickness (μ), moisture content: 1 - II, 200, 98%; 2 - II, 200, 70%; 3 - I, 80, 98%; 4 - I, 80, 70%.



Corrosion, in this case, is a linear function of the amount of moisture that has penetrated the protective film. Orig. art. has: 1 table and 4 figures.

SUB CODE: 11, 13, 07/ SUBM DATE: 14Jun65/ ORIG REF: 009/ OTH REF: 002

Card 2/2

L 46992-66 EWP(j)/EWT(m)/T/ENP(v) IJP(c) RM/WH
ACC NR: AP6022869 (N) SOURCE CODE: UR/0303/66/000/002/003C/0034

AUTHOR: Naumova, S. F.; Mikhaylovskiy, Yu. N.; Zubov, P. I. 42
B

ORG: none

TITLE: Effect of the vapor and gas permeability of polymer films on their properties 15

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 2, 1966, 30-34

TOPIC TAGS: protective coating, polymer film, hydrogen chloride, metal oxidation, polyethylene, teflon, polyvinyl chloride, magnesium, ADHESIVE. BONDING

ABSTRACT: The effect of the permeability of loose polymer film coatings on the oxidation rate of a metal in a moist atmosphere in the absence of an adhesive bond between the film and the metal was studied. The polymer films were PE-500 high-pressure polyethylene (70 μ thick), polytetrafluoroethylene (teflon) (55 μ), and V-118 polyvinyl chloride (180 μ). A new method of measuring slow oxidation rates of metals was used which involved the recording of changes in the electronic conductivity during oxidation of a thin metal film ($\sim 10^{-5}$ cm) under the polymer film. In order to increase the sensitivity of the method, the metal employed was magnesium, because of its high reactivity. It is shown that in a pure moist atmosphere the oxidation rate of the metal is practically independent of the nature of the polymer film (in the case of a nonadhering film). This is because the rate-determining step in the oxidation is the inhibition of the anodic process of metal ionization (hydration), not the diffusion of moisture

Card 1/2

UDC: 667.613.4